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Teaching epidemiology during an ongoing pandemic: an unprecedented experience

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Teaching epidemiology during an ongoing pandemic: an unprecedented experience

The lull before the storm: early weeks of spring 2020 semester

“Do students in the Introduction to Epidemiology course need to watch *Contagion* this semester?” was one of the conversations in my head as I was finalizing the course syllabus and schedule right before the start of spring 2020 semester. As a faculty member in the Community and Public Health Promotion (CPHP) program offered by the Health and Physical Education (HPE) department at Rhode Island College (RIC), I teach undergraduate and graduate courses in epidemiology, health promotion, and health program planning, among others. Given the relevance to public health, I prefer to give students—especially those in my epidemiology class—the opportunity to view the movie *Contagion*. As engrossing as the movie is, this leads to an engaging discussion on the reality of addressing emerging infections vis-à-vis the way things are depicted in the movie, before segueing to the specific topic of infectious disease transmission.

I was having second thoughts about allocating class time for the movie this year simply because a new viral infection—first reported in Wuhan province in China towards the end of 2019—was gaining momentum. Motivated by students’ interest, I decided that closely monitoring the evolution of this outbreak would allow a real-time understanding of the key steps in investigating an epidemic, and reemphasize the relevance of global health and social determinants of health. I put together a quick presentation for HPE 307 (Intro to Epidemiology) during the last week of January 2020. Thereafter, students would take turns retrieving information from the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and other relevant webpages to provide a brief update at the start of each class session.

To provide some context, the outbreak was still at its early stages when spring 2020 semester began. The virus, yet to be officially named as COVID-19, was referred to as Novel Coronavirus (2019-nCoV). As of January 31, 2020, there were less than 10,000 confirmed cases globally, the vast majority being in China. The World Health Organization (WHO) had declared this as a Public Health Emergency of International Concern (PHEIC) on January 30.¹ The United States had six (6) confirmed cases at the end of January.² As the semester was picking up in intensity, so was the outbreak. During February of 2020, more and more countries had started reporting imported and/or locally transmitted cases. In the US, there was a slow increase in the number of known cases. Around the second week of February, the WHO officially adopted the name “coronavirus disease 2019” or “COVID-19” in short, for the disease.³

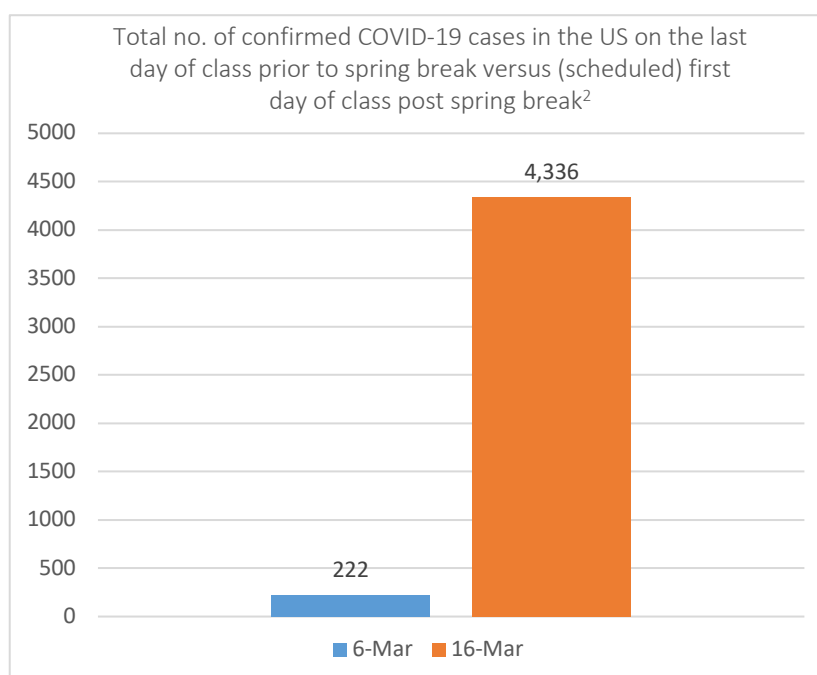
¹ World Health Organization (WHO). (Jan 31, 2020). Novel Coronavirus (2019-nCoV) Situation Report – 11. Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200131-sitrep-11-ncov.pdf?sfvrsn=de7c0f7_4.

² COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU). <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>.

³ World Health Organization (WHO). (Feb 11, 2020). Novel Coronavirus (2019-nCoV) Situation Report – 22. Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200211-sitrep-22-ncov.pdf?sfvrsn=fb6d49b1_2.

A tale of two different worlds: before and after spring break

The last day of class before spring break was Friday, March 6. I remember trying to catch up with some pending office work, as I was not planning to be on campus during the week of spring break. Eventually, I decided to complete the remaining stuff from home. Little did I know that Friday, March 6 would be the last day of “normal” campus activities in quite some time! As displayed in the figure below, the number of cases nationwide rose drastically. The WHO officially certified COVID-19 to be a pandemic on March 11.⁴ An increasing number of countries had started to impose travel restrictions, social distancing guidelines, and “lockdowns”. Rhode Island reported the first COVID-19 cases on March 1. By the end of the semester, as of May 15, Rhode Island had more than 12,500 confirmed cases, whereas the national and global confirmed COVID-19 case counts had surpassed, respectively, 1.4 million and 4.5 million.



The remaining weeks of spring 2020 post spring break (the break had to be extended by a week) appears almost unreal. While it is tempting to put on an “I told you so” air, that would be dishonest and audacious. Never in my wildest dreams did I imagine that the “outbreak” many of us were closely monitoring, would come to this. For someone who has academically studied dynamics of disease transmission, studied and taught about past pandemics, including the 1918 pandemic, and watched *Contagion* on numerous occasions, my reactions to this rapidly evolving crisis ranged from denial to disbelief to desperation. While outwardly wearing my evidence-based public health educator/communicator hat, I felt frustrated and deeply uneasy due to the unavoidable uncertainty, especially during the initial weeks of all changes on the work front as well as in day-to-day life. At the same time, I was well aware that this “uncertainty” in my

⁴ World Health Organization (WHO) (2020). Rolling updates on coronavirus disease (COVID-19). Retrieved from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>.

relatively privileged life paled in comparison to those for whom food, shelter, livelihood, and life are unpredictable even under non-pandemic situations.

Looking back.....and ahead

In hindsight, I feel the patient support of my wife as well as the presence of my infant son, who completed 7 months on May 30, helped me cope with the stress. I was also lucky to have had an adjusted workload, which comprised of teaching the Introduction to Epidemiology course, supervising two interns, and focusing on scholarship and service related activities. This made the transition to online course delivery comparatively smoother for me. I can only imagine the predicaments faced by faculty with normal teaching load and especially the students going through these drastic transitions.

The focus of this piece is not on student feedback and/or their experiences per se. Suffice to state that throughout the semester—especially during the second half—I was motivated by students' resilience in the face of this pandemic, their keenness to learn, and their readiness to engage in discussions. I cited examples from COVID-19 to go over key concepts including definitions of endemic, epidemic, sporadic, and pandemic; modes of transmission of infectious disease; steps in investigating an epidemic; isolation and quarantine; and factors determining the likelihood and speed of spread. In consultation with students and other faculty members, I did my best to modify the course evaluation criteria and incorporated more flexibility into the requirements for projects and other assignments. I tend to use open-book quizzes/exams even under normal circumstances. I feel this also helped me as well as students to adapt to the online format. However, there were things that I could have done better or planned better.

The summer break has provided me with some time to reflect upon the past few months. Given a number of unknown variables related to the pandemic, fall semester will bring its own challenges for schools, colleges, universities, and workplaces. COVID-19, with its enormous toll on human lives and livelihoods, and healthcare systems worldwide, is still an enigma in many ways. Led by countless healthcare professionals, public health experts, and scientists in the race against COVID-19, humankind must strive to understand, learn, and adapt as appropriate.